Santa Barbara Metropolitan Transit Distict

Bike & Bus Program

— A Historical Report —

MTD
Santa Barbara

MTD Bike & Bus Program

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I. INTRODUCTION

On August 17, 2000, the Santa Barbara County Air Pollution Control District (APCD) and the Santa Barbara Metropolitan Transit District (MTD) entered into a Grant Agreement to procure and install 35 Sportsworks bicycle racks. This would increase the total number of bicycle racks so that MTD's entire 40-foot bus fleet would be fully-equipped.

The purpose of this report first began out of a grant requirement to report on the status of the program. It was soon realized, in developing this document, that MTD's historical experiences with bikes and buses is where the complete picture lies. And so, this report lays out a chronological history from 1975 to 2002. It includes numbers where possible, such as the average number of bicycles carried per month, a break down of usage by route, and a comparison of bicycles carried to overall ridership. Most importantly, however, it highlights how MTD got to where it is today with its current Bike & Bus program.

II. MTD HISTORY OF BICYCLE PROGRAMS

Carrying bicycles on buses is not unfamiliar territory for MTD. In fact, MTD has had several bicycle-bus programs since the early 1970's, in an effort to extend the range of a person's trip beyond the fixed-route bus service therefore encouraging vehicles to be left at home.

On March 31, 1975, MTD launched a 6-month Bike-Bus Demonstration Project. The project involved, MTD borrowing a trailer, designed by Professor David Eggleston, from San Diego State University. The bright yellow trailer was capable of holding 14 bicycles, which slid into side-loading tracks on the bed of the trailer. Clamps suspended from an overhead A-frame locked onto the bicycle handlebars. MTD towed this trailer behind one of its 19-seat Mercedes minibuses.

This bike-bus combination was placed onto the Line 24 route, which provided express service between MTD's downtown Santa Barbara Transit Center and the University of California at Santa Barbara (UCSB), eight miles west of downtown via freeway. The service operated Monday-Friday from approximately 7am to 5pm and 9am to 6:30pm on weekends. The regular, one-way fare in 1975 was 25¢ and bicycling passengers paid an additional 15¢ to transport their bicycles. On that first day of service MTD carried one bike per trip. Within one month, MTD was carrying eight-nine bicycles per day out of 70 total daily passengers, or 6%, and by the end of the second month 45 bicycles per day were being transported.

Then in May 1975, the bicycle trailer broke down due to the lack of an adequate suspension system for daily service. Continuous vibrations and shaking eventually fatigued the springs,

causing the axle to bend and wooden frame to break. The program was temporarily suspended while the trailer was repaired.

In September 1975, the repaired trailer was back in service on the Line 24 express route between UCSB and MTD's Transit Center. This time around, the route included a loop after departing UCSB that included Los Carneros and Calle Real before returning to the Transit Center. The new route provided three additional stops, El Colegio at Los Carneros, Hollister at Los Carneros and Calle Real at Fairview Center, creating 5 stops in all from which passengers could load and unload their bicycles. The 15¢ bicycle fare still applied. At this time, MTD also launched it's first advertising campaign to promote bike and bus usage (see appendix). By mid-1976, the trailer once again experienced structural problems and the program was suspended.

Through out 1976 and 1977, MTD worked on obtaining a grant from the Urban Mass Transit Administration (UMTA) for a Bicycle Paratransit Demonstration. The grant included a request for six additional bicycle trailers as well as 50 enclosed bike lockers and racks at sites through out Santa Barbara, Goleta, and Carpinteria.

Meanwhile in early 1977, MTD contracted with Tilford Welding Company to fabricate a new trailer entirely of metal with simpler, more effective supports that could withstand the vibrations that occurred while the bus was moving. The supports gripped the bicycles at the tires, not on the handlebars as previously, which were easier to use by the passenger. Additionally, the trailer was redesigned to be lower to the ground, with individual bike ramps for easier loading and to have two-axles and four wheels, an improvement on the previous two-wheel version, which tended to sway behind the bus.

In May 1977, the Mercedes minibus and it's newest trailer were back on the road providing service once again on the Line 24 route. This time the bus made stops at Arrellaga, Castillo, Storke, Hollister, Francisco Torres and of course at UCSB. The 15¢ fare still applied. By June 1979, MTD launched a second trailer, this time on it's existing Line 13 route, which provided service from Goleta to Carpinteria, stopping at 12 specially-marked bicycle bus stops. At this point, the 15¢ bicycle fare was dropped and the service was free.

Meanwhile, back on February 6, 1978, Senator Alan Cranston announced that MTD received the $182,000 UMTA grant to test the coordination of bicycle transportation and bus service. By April, after observing MTD's bike trailer in service, UMTA gave authorization for MTD to solicit requests for proposals to implement the first phase of the program. Thankfully, this grant came at a time when the trailers, as with their predecessor, began experiencing problems withstanding the rigors of daily transit service due in part to the use of aluminum tie-downs that lacked durability, wood decking that deterioriated in the weather, and the low profile that tended to scrape the high road crowns in the area.

The lessons learned from the previous models allowed MTD to design a trailer that could withstand the previous conditions. The new trailer now had galvanized steel tie-downs; had heavy guage steel mesh for the decking instead of wood; and incorporated a one-axle design that was re-located to the rear of the trailer's center line thereby improving stability and alleviating the scraping incurred previously from the road crowns. Additionally, a deflection shield was installed to capture diesel soot from the exhaust that was previously dirtying the bicycles. Six of these newly designed trailers were built for the UMTA-approved, Bike Paratransit Demonstration at a cost of $3,800 each.

By September 1979, with all six bike trailers complete and on the Lines 12, 13/26, 16, 24, and 27, MTD was carrying an average of 105 bicycles on weekdays, 44 on Saturdays, and 28 on Sundays. Additionally, 60 "Rally-style" bicycle racks, another component of the UMTA grant, had been installed at bus stops through out the system and by November that number grew to 150 racks. Finally, 12 bicycle lockers were purchase for placement at key locations such as the Transit Center.

A corresponding market study was conducted in this time period where the following conclusions were reached:

- Interest in bicycle paratransit as a travel mode was concentrated in the 10-24 age bracket.
- Only a small portion of the population was aware of the existing bike trailer route, even among the high concentration of bicycle riders at UCSB.
- No one will pay to park a bicycle.
- Provision of bicycle parking at bus stops seems likely to increase bicycle use as a bus access mode, but will cause only a slight total increase in bus ridership.
- For effective market development, the bike trailer must be run on weekends.

With the opening of MTD's new Park & Ride Facility in Goleta, which included new bicycle lockers, and the growing bike trailer program, MTD embarked on a large multi-media campaign centered around familiarizing the public with the bike and ride program and how to use it. The campaign, "Signs of the Times", included print, radio, bus advertising, and bus stop signage and promoted the Bike 'n' Ride and Bus 'n' Bike programs.

Between late 1979 and 1981, the main bike-bus routes became the Lines 13/26, 16, and 27 (The growing popularity of the Line 24 required the use of a larger bus that could not tow a bike trailer). By January 1982 however, due to ever increasing ridership, requiring MTD to replace its smaller mini-buses with larger 40-foot buses, and to help offset a budget deficit, MTD terminated the Lines 13/26, and 27 as bike-bus routes. Consequently the bike trailer program was phased out.

Then in May 1984, MTD once again began carrying bicycles on its buses, this time via a rear-mounted bicycle rack, capable of holding two bikes, installed directly on the back of the bus. The program launched on the Line 16, serving Westmont College. Bicycles could only be loaded and unloaded at specific stops which were marked for bicycle service. By November, the program was expanded to include five routes – Line 10 serving Cathedral Oaks, Lines 15 serving City College and the Mesa, Line 20 serving Carpinteria, Line 24 serving UCSB and of course Line 16 serving Westmont College. Between November and December of that year, 78-83% of all bicycles carried on these routes were carried by the Line 16, however bicycle trips on this line only made up 3-4% of total Line 16 ridership.

By June 1985, due to a decrease in ridership, the identified risk management (rear mounting resulted in accidents and theft), and maintenance (the racks had to be removed each time prior to buses entering the bus washer due to damage experienced in the washer), all bicycle-bus service was discontinued except for the Line 16, which accounted for two-thirds of all usage. Between 1985 and 1987 however, even the Line 16 realized a loss in bicycle ridership to only 70 bicycles per month or less than three per day. By September 1987, the bike-bus service was cancelled on the Line 16 and therefore the program was terminated.

Ten years later in 1995, the Air Pollution Control District (APCD) approved a grant for the MTD to implement a pilot program that would allow bicycles to be carried on the front of some MTD buses. A front-mounted rack was chosen because bicycle installation and removal was easily observed by the bus driver and the rack could travel through the bus wash. A successful demonstration program ensued for the next six years, with three MTD routes (Lines 12 Goleta Express, 20 Carpinteria, and 24 UCSB Express) carrying well over 87,000 bicycles (1995-2001), significantly contributing to multi-modalism in southern Santa Barbara County. The program became known as the Bike & Bus program.

As stated in the introduction, MTD and the APCD teamed up again in 2000 to expand the Bike & Bus program to MTD's entire fleet of 40-foot buses. Since February 2001, all 40-foot buses have been equipped with front-mounted bicycle racks capable of holding two bicycles each. At the completion of the first year of this newly expanded program MTD carried approximately 43,000 bicycles compared to 20,000 bicycles the prior twelve month period (February 2000-January 2001).

Since the inception of the Bike & Bus program (front-mounted racks-only), including both the pilot and expanded programs, MTD has carried approximately 135,000 bicycles. MTD looks forward to the continued success of this program.

III. HOW EACH DEPARTMENT SUPPORTS THE BIKE & BUS PROGRAM TODAY

Operations:

- Trains of all drivers to operate the rack safely and properly.
- Responds to claims resulting from bike rack accidents however none occurred during this time period.

Maintenance: (see Appendix B for maintenance costs associated with this program.)

- Retrofitting of the bike racks for installation on the low-floor Novas due to driver visibility issues. This involves extra materials and labor.
- Checks and services racks monthly, making any necessary repairs or replacements to ensure they are in good working order.
- Additional bus washing time due to the necessities of deploying each rack, soaping the front of the bus, and stowing the rack before driving through the bus wash.
- In the event that a vehicle requires towing, the front section of the rack must be removed to facilitate maneuverability, adding approximately 5 minutes per road call.

Marketing:

- Sent out press release to all local media in February 2001 announcing program expansion. Articles were subsequently printed in Carpinteria's weekly Coastal View newspaper, the daily Santa Barbara News-Press newspaper, and in the monthly Quick Release newsletter published by the Santa Barbara Bicycle Coalition.
- A five-minute video explaining the bike-rack operation continues to be available at MTD's Transit Center.
- Ensure that MTD's website has a designated button for Bike & Bus on the home page, providing detailed instructions on how to load and unload bicycles safely.
- Designed a graphical icon 

, which is clearly placed for easy recognition in MTD's printed Routes & Schedules Guide and on the website next to all maps with routes served by 40-foot buses.

Planning:

- Tracks and records the number of bicycles carried per route monthly.

IV. INPUT FROM PUBLIC REGARDING BIKE & BUS PROGRAM TODAY

Following are the most commonly asked questions by MTD passengers:

Q: What does it cost to take part in the Bike & Bus program?

A: The Bike & Bus program is free to all MTD passengers. There are requirements regarding type of bicycle allowed and passenger ability to self-load and unload, which is outlined on MTD's website and through an instructional video available at the Transit Center.

Q: What do I do if both bicycle slots are full when the bus approaches my bus stop?

A: MTD does not allow bicycles on board its buses for safety reasons. Bicycle lockers/racks may be an option in the future that could be available at certain bus stops so that a passenger may elect to lock up his or her bicycle in these situations.

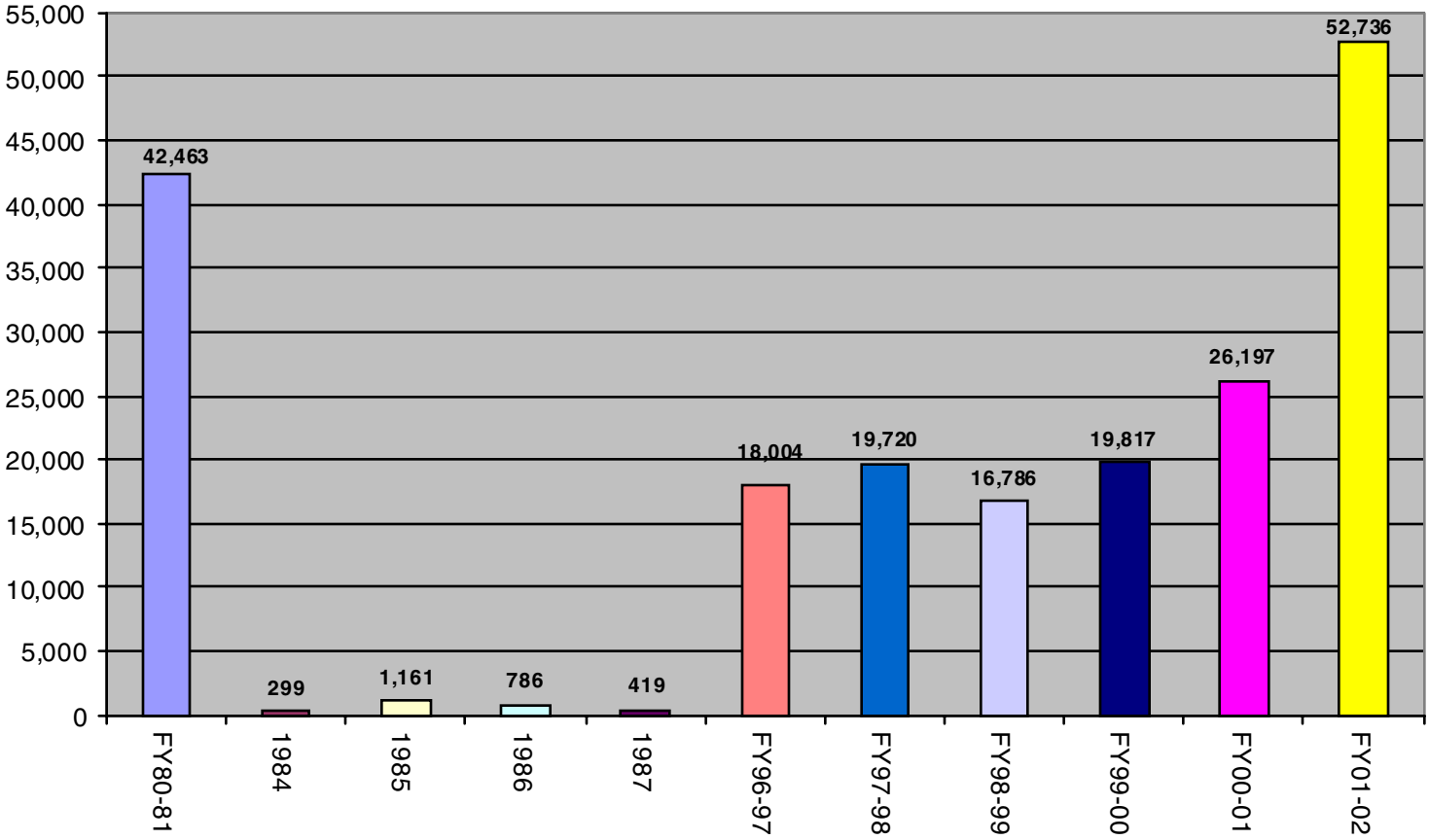
Q: Why aren't there racks on all MTD buses?

A: MTD will be retiring the entire fleet of 30-foot buses and replacing them with a mixture of electric and hybrid-electric vehicles. It is not known at this time if the new vehicles will be able to accommodate bicycle racks.

V. USAGE OF RACKS

The chart below (Figure 1) lists those years and corresponding numbers of bicycles carried for which MTD has information. Note that in FY80-81, six trailers were being used on multiple routes and the "Signs of the Times" campaign was drawing public awareness to the program. Through out the mid and late 1980's, bike ridership, which now was accommodated through rear-mounted racks, plummeted and as mentioned earlier, the program was terminated in late 1987. Notably, when MTD installed front-mounted racks in 1995, bicycle ridership increased significantly and continues to climb today.

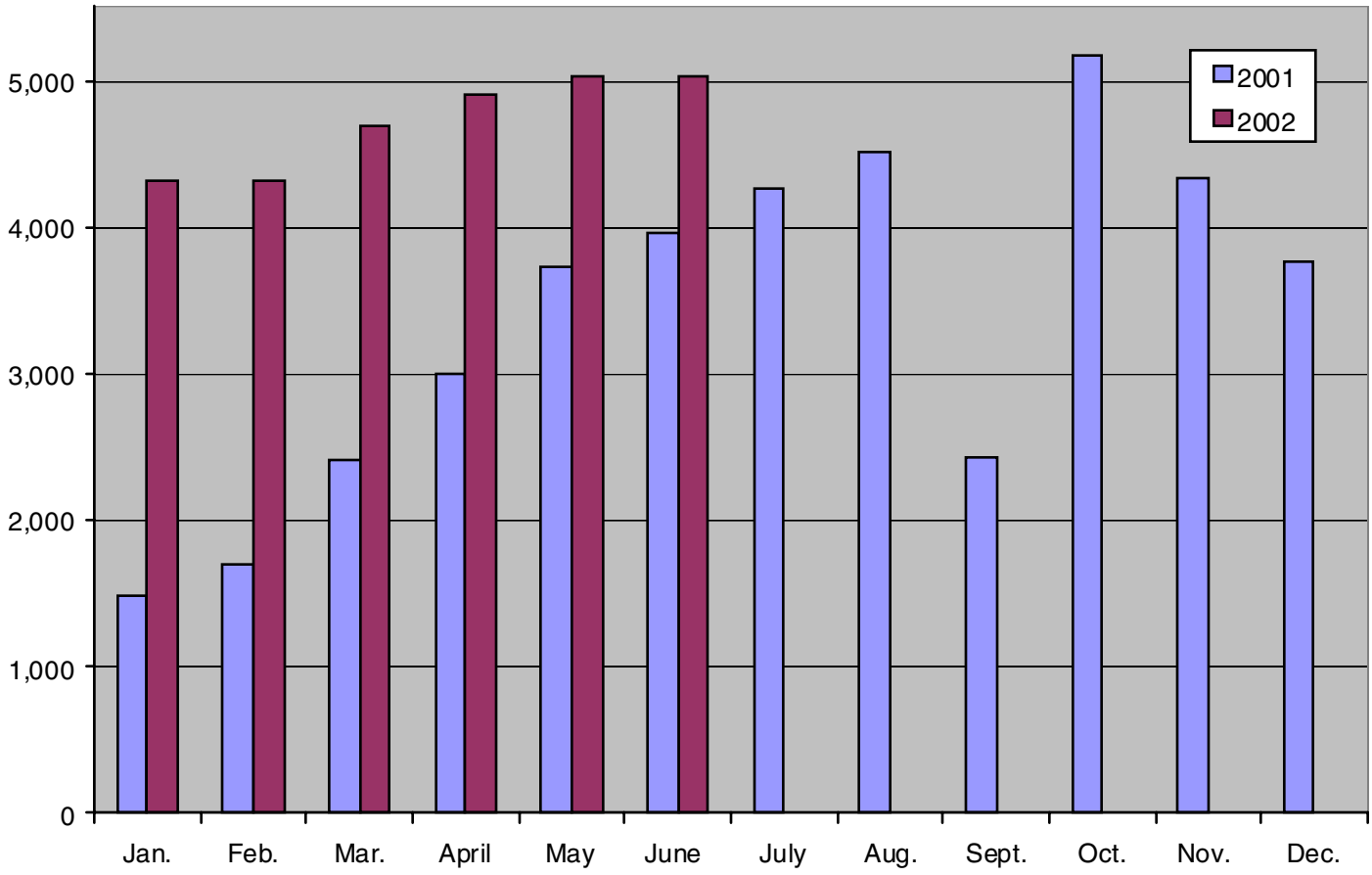
Figure 1
MTD Bike Rack Usage (various years)



Looking specifically at the fully-implemented, front-mounted, Bike & Bus Program (February 2001 to present) Figure 2 shows an upward trend in bicycle rack usage. Not surprisingly, this trend closely matches the seasonal ridership experienced on the shuttles, with the warmer months seeing higher usage. The dramatic drop in September 2001 may be explained, in part, due to the tragic events of September 11th.

MTD realized a 153% increase in the one year period between February 2001 and February 2002.

Figure 2
MTD Bike Rack Usage (Jan 01 - June 02)



While there are 12 routes for which 40-foot buses are allocated and therefore guarantee bicycle rack availability (1, 6, 8, 11, 12x, 13x, 15x, 18, 20, 21x, 23, and 26x) the most popular routes for bicyclists are the Lines 12x, 11, 20, and 6, respectively, as figure 3 below outlines. In fact, the Lines 11 and 12x carry 52% of all bicycles in the program. It is important to note that these are also among the routes that carry the largest percentage of MTD bus passengers system wide.

Interestingly, the Line 1, by far the route with the highest MTD ridership, only carries 6% of the bicycles. This may reflect the demographic of the ridership in that the Lines 11 and 12 serve UCSB and Lines 20 and 6 (along with Line 11) are trunk lines that serve a larger geographic area with many stops along the route.

Figure 3
Percentage of Bicycle Rack Usage by Route - Feb 01 to June 02

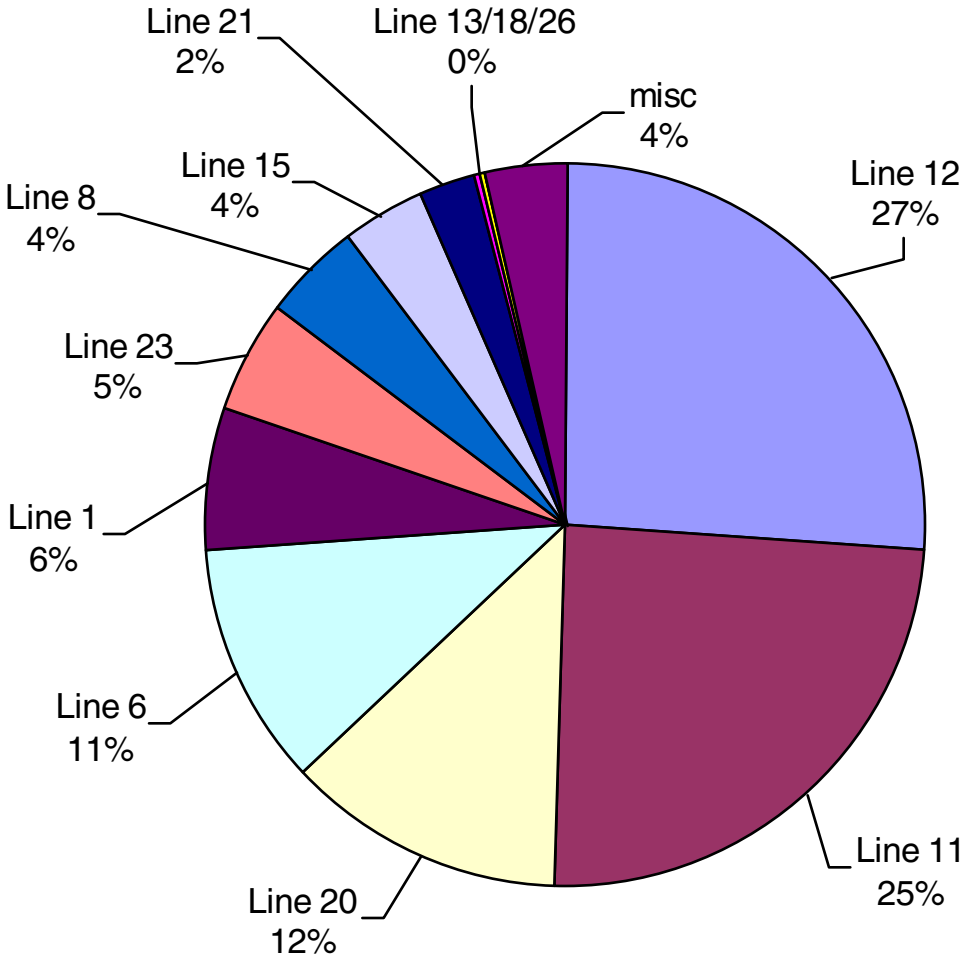
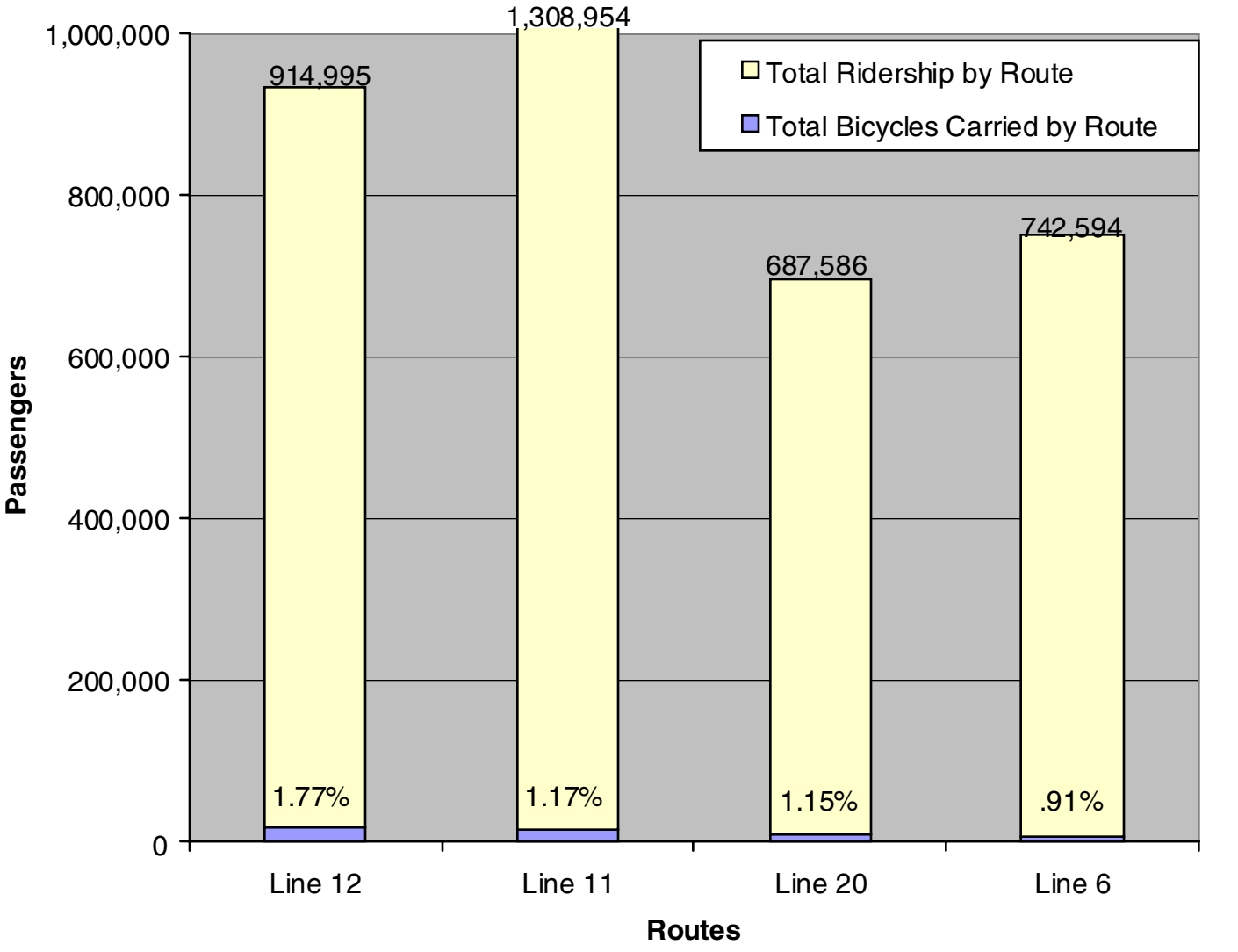


Figure 4 breaks out the percentage of bicycles carried as compared to total ridership of the most utilized bicycle routes (12, 11, 20, and 6).

Figure 4
Bicycles Compared to Ridership per Route - Feb 01 to June 02



Figures 5A and 5B show the monthly average of bicycles carried compared to monthly bus ridership, service hours and service miles. Note, that while the Lines 11 and 12x carry the most bicycles on average per month, the Line 13x while not carrying as many bicycles is the most productive in terms of bicycles carried per hour and performs well in the bicycles per 100 mile category as well. In fact, 6.59% of its ridership are bicycling passengers. It is important to note that both the 13x and the 26x are commuter services with just one morning trip and one afternoon trip daily, thus explaining the low number of bicycles carried overall.

Figure 5A – Comparison of Bicycles Carried to Ridership

ROUTE	Avg Monthly Bicycles Carried	Avg Monthly Bus Ridership	Avg Monthly Bicycles Carried per 100 Passengers	% of Cycling Passengers to Non-Cycling Passengers
12x	1,112	57,908	1.9	1.92%
11	1,088	80,636	1.3	1.35%
20	601	38,049	1.6	1.58%
6	555	46,138	1.2	1.20%
1	365	112,380	0.3	0.32%
23	250	29,813	0.8	0.84%
8	224	18,358	1.2	1.22%
15x	177	12,678	1.4	1.40%
21x	176	10,518	1.7	1.67%
13x	22	334	6.6	6.59%
18	16	3,181	0.5	0.50%
26x	2	408	0.5	0.49%
TOTAL	**4,588**	**410,401**	**11**	**1.12%**

Figure 5B – Comparison of Bicycles Carried to Service Hours/Miles

ROUTE	Avg Monthly Passengers Carried per Hour	Avg Monthly Service Hours	Avg Monthly Bicycles Carried per Hour	Avg Monthly Service Miles	Avg Monthly Bicycles Carried per 100 Miles
13x	21.5	20	1.10	592	3.72
12x	53.8	1,203	0.92	27,958	3.98
11	46.8	1,877	0.58	26,014	4.18
6	47.0	1,066	0.52	12,811	4.33
20	37.1	1,192	0.50	20,152	2.98
15x	43.1	382	0.46	10,863	1.63
21x	24.2	433	0.41	8,465	2.08
8	24.1	640	0.35	13,600	1.65
23	42.0	873	0.29	11,291	2.21
1	63.2	1,868	0.20	15,792	2.31
18	27.6	110	0.15	1,890	0.85
26x	25.3	20	0.10	20,152	0.01
TOTAL	**42.38**	**9,684**	**0.47**	**169,580**	**2.71**

VI. Summary

MTD's current Bike & Bus program continues to be a popular service with a regular ridership. The trend analysis confirms an increasingly steady usage of the racks among UCSB routes as well as with the heavy working trunk routes.

The expansion of the program to include all 40-foot vehicles has provided for a much easier to communicate, reliable program. Passengers are guaranteed bicycle racks on all routes with 40-foot buses allocated to them, currently twelve lines. Passengers easily know which routes these are simply by looking for the Bike & Bus icon within printed materials and on MTD's website.

All in all, this is a successful program from both a passenger benefit, administrative and safety standpoint. Ironically, the popularity of the program is also its drawback. Because each rack can only hold two bicycles, passengers wait at a stop ready to load their bike, only to find the approaching bus with a full rack. Solutions that have been offered include allowing bicycles on the bus, installing rear-mounted racks in addition to the front-mounted racks, and providing bicycle racks and/or lockers at bus stops. All of these have their drawbacks.

As mentioned in this report, MTD has had experience with many types of bicycle/bus mobility programs. Trailers are a thing of the past now that large 40-foot buses must maneuver increasingly busy and narrow streets. Rear-mounted racks have proven to be difficult to maintain with increased liabilities. Bike racks and lockers provide a whole new set of security issues and with the high cost of bicycles, passengers are less inclined to leave their bicycles at an unattended location such as a bus stop, where the risk of theft is great. Finally, allowing bicycles on board the bus seems unfair to the 98-99% of bus passengers that do not utilize this service and who must maneuver around a bicycle in the aisle.

Recently, a popular bike rack manufacturer debuted a proto-type rack that is capable of holding three bicycles. Concerns over the fully deployed rack extending further than the legal vehicle-length limit appears to be addressed. This new rack does not extend any further than its two-bicycle rack counterpart, which MTD currently uses. While it may be too early to call, the proto-type rack is being tested at a few transit properties in the Western region and so far it has been successful. So it seems that another potential solution is in the works.

It does not appear that all of the answers are available at this time on how best to administer and grow a successful bike-bus program that is beneficial to everyone. MTD has proven however that with perseverance and support and continued research, bicycles and buses together can help people to extend their travel, while leaving their vehicles at home.

APPENDIX A

BICYCLES BY ROUTE - 2/01 to 6/02

	Feb. 01	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan. 02	Feb.	Mar.	April	May	June	TOTAL
Line 12	365	473	790	1,042	1,154	1,449	1,328	560	1,167	967	971	1,103	1,040	1,112	1,331	1,315	1,377	**17,544**
Line 11	242	393	770	977	1,034	1,068	1,088	711	1,319	1,210	970	1,078	1,048	1,088	1,140	1,207	1,266	**16,609**
Line 20	320	469	411	431	562	555	657	293	605	513	470	505	478	601	518	533	512	**8,433**
Line 6	129	186	288	378	426	408	521	220	571	522	450	496	456	555	567	553	597	**7,323**
Line 1	41	50	141	184	225	267	268	167	307	288	261	324	331	365	356	385	380	**4,340**
Line 23	28	47	151	222	171	215	201	159	333	234	211	236	190	250	211	229	266	**3,354**
Line 8	0	0	100	193	218	217	234	53	246	164	141	186	230	224	275	294	260	**3,035**
Line 15	109	125	185	148	75	0	108	110	269	181	108	151	223	177	174	224	57	**2,424**
Line 21	N/A	N/A	N/A	N/A	N/A	0	0	121	228	127	96	143	162	176	202	137	223	**1,615**
Line 18	1	3	15	33	20	21	25	4	16	11	19	11	12	16	10	14	8	**239**
Line 13	0	2	6	10	9	4	9	2	2	8	9	11	15	22	27	12	16	**164**
Line 26	1	2	2	1	2	0	0	0	0	7	5	3	2	0	4	16	8	**53**
misc	466	665	132	109	54	51	69	34	114	103	57	60	125	97	85	110	58	**2,389**
TOTAL	**1,702**	**2,415**	**2,991**	**3,728**	**3,950**	**4,255**	**4,508**	**2,434**	**5,177**	**4,335**	**3,768**	**4,307**	**4,312**	**4,683**	**4,900**	**5,029**	**5,028**	**62,494**

APPENDIX B

Breakdown of Annual Maintenance costs associated with Bike & Bus Program

1. Retrofitting of Racks for Novas

Materials	$176 x 22 Novas*	$ 3,872
Labor	$ 35/hr x 8hr/rack x 22 Novas	$ 6,160
		$10,032

** Eleven racks were previously installed on Novas as part of demonstration program in 1999.*

2. Annual parts replacement costs

Support Arm Grips	$11.50 x 2/mo x 12 mo	$ 276
Bracket Bolts/Bushings	$17.00 x 2/mo x 12 mo	$ 408
Decals	$10.00 x 4/mo x 12 mo	$ 480
		$ 1,164

3. Annual preventative maintenance costs (safety inspections)

Basic Labor:	82.4 hr/year x $35/hr	$ 2,884

4. Annual bike rack repairs (straighten damaged bike racks)

Basic Labor:	120 hr/year x $35/hr	$ 4,200

5. Annual rack replacement costs

There were 9 racks that were in need of replacement due to accidents.

Cost of racks	$376/rack x 9 racks	$ 3,384
Labor	$35/hr x 2 hr/rack x 9 racks	$ 630
Total		$ 4,014

6. Road calls

In the event of a vehicle requiring towing (approximately 24 times per year) the front section of the rack must be removed to facilitate maneuverability, adding approximately 5 minutes per road call.

Labor Costs	5 minutes x 24 calls = 2 additional hours per year	
	$35/hr x 2 hrs	$ 70

7. Annual increased bus washing costs

Bus washing time is increased by 30 seconds per bus or 30 minutes per night due to necessity of deploying each rack, soaping the front of the bus, and stowing the rack before driving through the bus wash. This time is down from 2 minutes during the pilot program.

Labor Costs	30 minutes/night x 362 nights = 181 hours	
	181 hr x $12/hr	$ 2,172

TOTAL Annual operational costs:

Nova Retrofits	$10,032
Parts Replacement	$ 1,164
Preventative Maintenance	$ 2,884
Bike Rack Repairs	$ 4,200
Bike Rack Replacements	$ 4,014
Road Calls	$ 70
Bus Washing	$ 2,172
Total	**$24,536**